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A new genus of telonychopodine millipeds from Brazil (Polydesmida: Chelodesmidae)

By Richard L. Hoffman

ABSTRACT

The new genus and species *Vanzolegulus limbatus,* described from a single male collected in Mato Grosso, Brazil, differs from other known genera of the tribe Telonychopodini in having paramedian sternal processes on the 6th segment and in the condensed gonotelopodite, with a small solenomere at its midlength.

Ongoing investigation of the rich materials of Chelodesmidae loaned by the Museum of Zoology, University of São Paulo, continues to enhance our knowledge of extent and diversity of the Brazilian fauna of this enormous family of millipeds. I take this occasion to document an undescribed genus and species of the tribe Telonychopodini, endemic to the upper drainage basin of the Rio Paraná.

Family CHELODESMIDAE Cook

Tribe **Telonychopini** Verhoeff

The members of this taxon appear to be fairly generalized chelodesmids restricted to the western Brazilian state of Mato Grosso. The content of the group has changed capriciously since the type genus was named by Verhoeff in 1941. Originally proposed as a monobasic family, it was downgraded to the rank of tribe in my initial treatment (1965), where enlarged by the tentative addition of the genera *Catharodesmus, Manfrediodesmus*, and *Euthydesmus* . In my 1980 "Classification

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I increased the heterogeneity of the tribe by adding the four genera *Odontopeltis, Brachyurodesmus, Eucampesmella,* and *Macrocoxodesmus*, reflecting inadequate experience with the taxa named.

Most recently (2000) I essayed a new and more stringent definition of the Telonychopodini that recognized only three genera: *Telonychopus, Manfrediodesmus,* and the new *Pantanalodesmus*. Of the erstwhile bedfellows, *Eucampesmella* and *Macrocoxodesmus* have been assigned to a separate tribe Macrocoxodesmini (Hoffman 1990) and the jury is still out concerning the other four (although at least *Brachyurodesmus* appears to belong in the general spectrum of *Telonychopus*.

The long tribal definition I proposed in 2000 requires some modification to accomodate characters of the new genus described below. In addition, a feature of major importance was omitted, and another was not sufficiently emphasized. The revised statement follows, with specific tribal apomorphies highlighted:

Large chelodesmids, length to 70 mm.; paranota set high on sides and nearly horizontal on most segments, both corners rounded on segments as far back as midbody, caudal corners becoming angularly produced only on the last four or five; ozopores in normal sequence, placed in flat, elongate-oval peritremata, continuous with paranotal edges; metaterga essentially smooth to microcoriaceous, with shallow transverse sulcus, transverse rows of tubercles absent or only minimally represented; stricture deep, anterior edge sharply defined, prozonal surface coarsely micro-reticulate. *6th antennomere with rounded convex sensory organ on outer surface* Limbus with large obliquely elevated spiniform projections ventrally. Males with low to prominent paired setose knobs on sterna of segments 4-6; anterior legs without modifications. Cyphopods large, elongate, projecting ventral outside the body behind 2nd pair of legs, receptacle sclerite apparently absent.

Gonopods with large, sclerotized, median sternal element; coxosternal apodemes large, flattened, decurved at nearly a right angle; coxae massive, much of their mass held outside the sternal aperture; *the distal edge recurved and extended inward, forming a re-entrant surface that displaces the condyles proximally and largely conceals basal region of telopodites;* latter set against coxae at a right angle, short and massive vis-à-vis size of coxae, prefemoral process small or absent, no trace of torsion and prostatic groove entirely visible in medial aspect.

The modification of the gonopod coxae is difficult to illustrate. As drawn in ventral aspect (e.g., Fig. 6), the line that appears to encircle the prefemoral region is *not* the actual distal edge, but only the point at which the coxal surface is reflected interiorly. The effect is this near invagination is to displace the lateral coxal condyle endoproximally, and creates the effect, in ventral aspect, that the base of the telopodite has been withdrawn down into an encompassing coxal cavity. Such a modification is rare in this family, and must be considered a highly derived expression of coxal structure. Something similar occurs in species of the apparently

related tribes Macrocoxodesmini and Gonorygmatini, which likewise share the unusual character of a spinose limbus.

As the chelodesmid fauna of Brazil becomes better known, a general image of relationships is emerging, one aspect of which is a cluster of closely related taxa confined to the Paraná River basin, opposed to a second, larger group of genera mostly endemic to the eastern and southeastern regions of the country. Species of the second group tend to have more derived traits, such as subtarsal and prefemoral pads in males, smaller gonopods with prominent coxal apophyses, reduction or loss of gonosternum, lack of spinulose limbus, lack of antennal sensory organ, and so on. There are, to be sure, additional small taxa which fall outside the two just cited, both structurally and geographically.

Key to genera of Telonychopodini

1. Sternum of 6th segment with two prominent, paramedian processes (Fig.8); prostatic groove terminating on a short ridge at about midlength of telopodite on dorsal side (Fig. 9) . . . . . *Vanzolegulus*
– Sternum of 6th segment flat to slightly concave, without trace of paramedian processes; prostatic groove terminating on a discrete solenomere at distal end of telopodite 2

2. Telopodite terminating in the solenomere and two additional processes; prostatic groove carried by a ridge along the femoral region and visible in ventral aspect . . . . . *Manfrediodesmus*
– Telopodite terminating in the solenomere and at most one additional process; prostatic groove visible only in mesal aspect 3

3. Telopodite of gonopod arcuately curved dorsad (as seen in mesal aspect!), solenomere sigmoidally curved, evenly continuing distal reduction of femoral region . . . . . *Pantanalodesmus*
– Femoral region of telopodite essentially straight, apex abruptly set off as a short, broad, laminate solenomere . . . . . *Telonychopus*

Vanzolegulus, new genus

NAME: A neologism incorporating the name Vanzolini and the Latin *legulus* (Lat., a collector), commemorating the contributions of the collector of the type species, *facile princeps* of Brazilian natural history.

DIAGNOSIS: Differing from other known genera of the tribe by the presence of paramedian processes on the sternum of segment 6 and by the strongly condensed

form of the gonotelopodite, with a small projecting solenomere at about midlength on the dorsal surface.

RANGE: Known only from Mato Grosso, Brazil.

SPECIES: One.

Vanzolegulus limbatus, new species

Figures 1-10

NAME: Latin, "bordered", in reference to the curious modification of the metatergal limbus.

MATERIAL: Male holotype (MZUSP) from Mato Grosso [now Vila Bela da Santissima Trindade], Edo MT, Brazil, 12-16 March 1976, P. E. Vanzolini leg.

HOLOTYPE: Length ca. 48 mm (specimen broken), width of collum 7.0 mm, segment 2, 7.4 mm, segments 4-10, 7.3, segment 14, 7.0 mm, segment 16, 6.7 mm. Body relatively slender for a chelodesmid, approximate W/L ratio,15%. Color altered by preservation, at present basically light reddish-purple, antennae and legs lighter red, tarsi and proximal third of femora reddish-orange; both dorsal and ventral sides of paranota yellow, the paranotal spots connected across metaterga by a yellow marginal band, broadest medially.

Head unmodified, 4.0 mm across genal apices, interantennae space 1.2 mm.; frons and clypeus set with numerous fine short setae in addition to the usual longer facial setae. Antennae long and slender, basal article subglobose, 2-6th subclavate and similar in shape, 3rd-6th equal in length, 2nd a little longer. 7th article (Fig. 1) with distinct hemispheric sensory structure on outer surface.

Collum and paranota of segments 2 and 3 (Fig. 2), surface smooth, paranota slightly declivent, edges not margined. Metaterga of body segments smooth or with only traces of transverse rows of minute tubercles, transverse sulcus not evident; stricture broad, clearly defined around segments. Limbus broad, distinct, ventrally with suberect spinose projections placed at a slight distance from actual edge. Anterior and posterior corners of paranota rounded back to about segment 12, thereafter posterior corner lobed posteriad, becoming subtriangular by 14th (Figs. 3, 4); paranota of segment 19 reduced, their tips surpassed by those of 18th; epiproct acute. Paraprocts and hypoproct of normal chelodesmid form. Sterna relatively broad 2.0 mm at midbody, slightly elevated and sparsely setose at bases of legs, otherwise glabrous. Legs long, slender, glabrous except for tibiae and tarsi.

Paramedian sternal processes of segment 4 (Fig. 6) small and compressed; subglobose and slightly separated on segment 5, widely separated between front legs of segment 6, the distal third directed caudolaterad (Fig. 7); all sternal processes set with short coarse setae. Anterior legs without modifications.

Gonopod aperture (Fig. 8) large, transversely oval, extended between bases of 8th legs with caudal edge slightly elevated; interior surface with several small ridges just anterior to coxal condyle of 8th legs. Coxae large, nearly half their mass held outside the aperture; a large median sternal element present, coxosternal apodeme narrow, abruptly recurved. Dorsal and lateral surfaces with a transverse subapical field of large setae; lateral edge truncate, with about half of prefemora visible. Base of telopodite continuing median coxal axis, acropodite region gradually recurved to about a 90° angle; telopodite about equal to coxa in terms of length and overall size. Prefemur relatively small, basally with fine dense setae, distally with much larger and sparsely placed setae; a large, flat, acuminate prefemoral process present, with small digitiform basal projection on lateral side. Acropodite region broad, flat to convex on ventral side, slightly concave on dorsal, with a fine longitudinal lamina extending from midlength to apex, its basal region enlarged and carrying prostatic groove. Telopodite without torsion or obvious subdivision aside a vaguely suggested constriction betwen prefemur and acropodite.

ACKNOWLEDGMENTS

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Address of the author:

Dr. Richard L. Hoffman
Virginia Museum of Natural History
Martinsville, Virginia 24112, USA

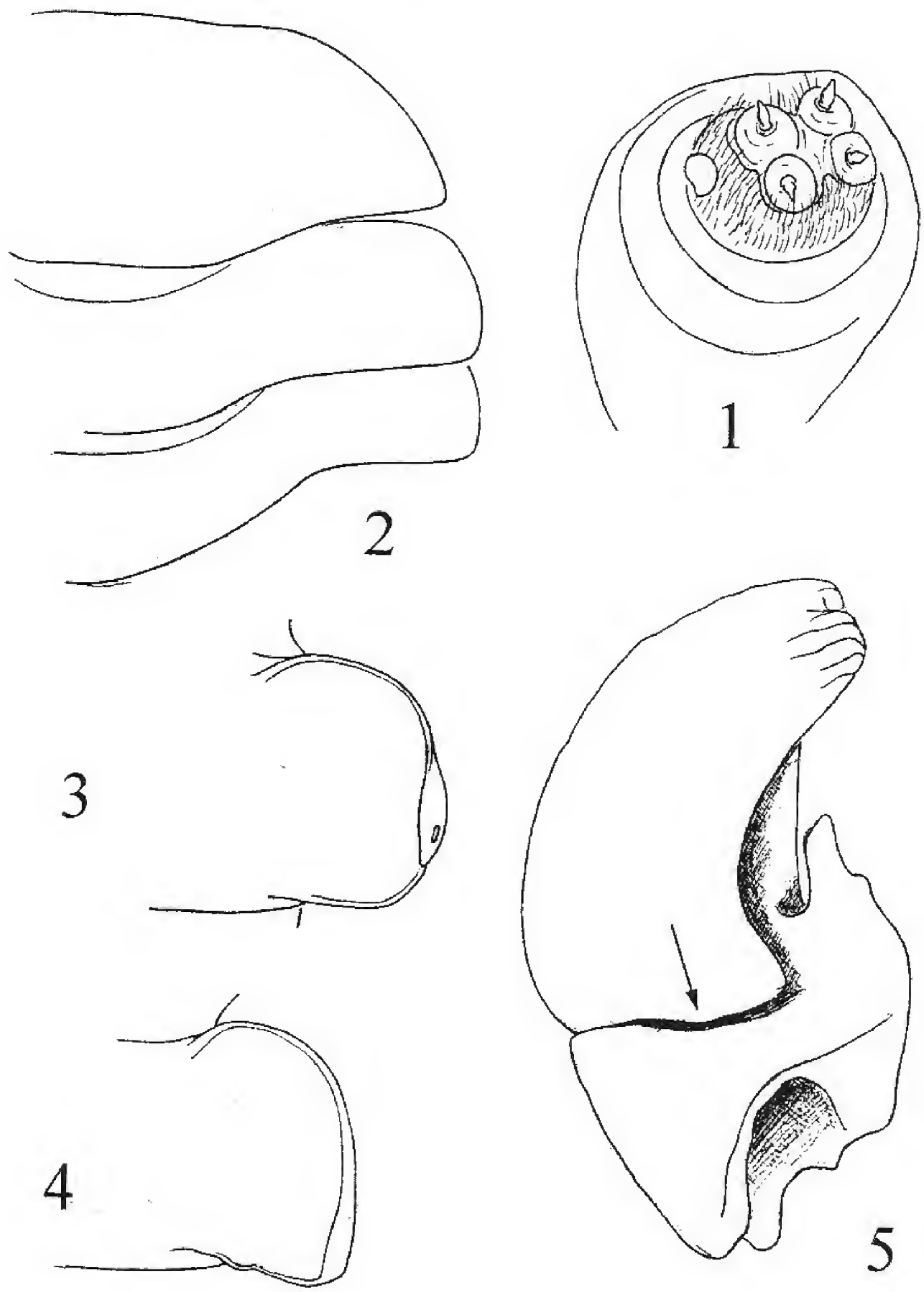
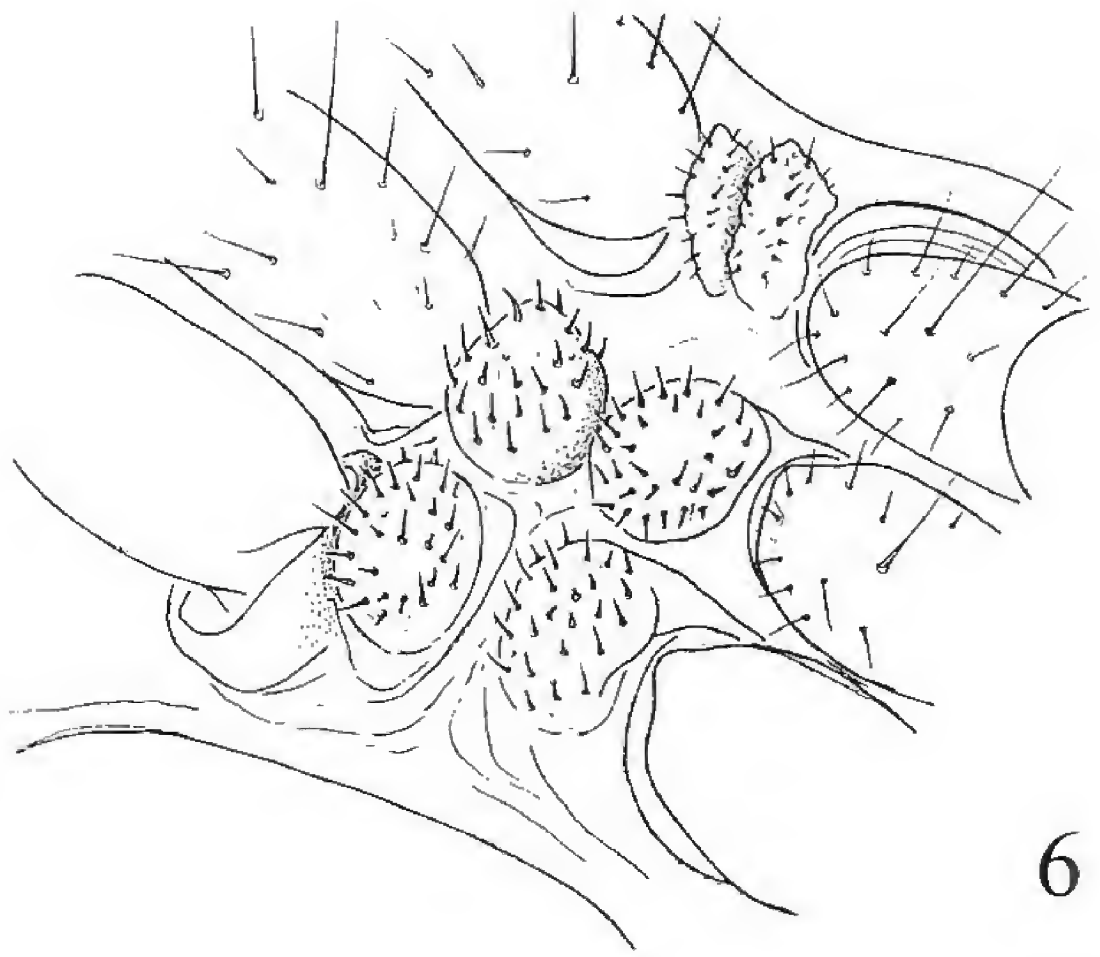


Fig. 1. Distal aspect of 6th and 7th antennomeres, showing convex sensory organ on outer side of 7th. Fig. 2. Right side of segments 1-3, dorsal aspect. Fig. 3. Right paranotum of segment 10. Fig. 4. Right paranotum of segment 14. Fig. 5. Telopodite of left gonopod, lateral aspect, removed from coxa to show basal cotyle; darkened band indicated by arrow is heavily pigmented integument, **not** a flexible suture.



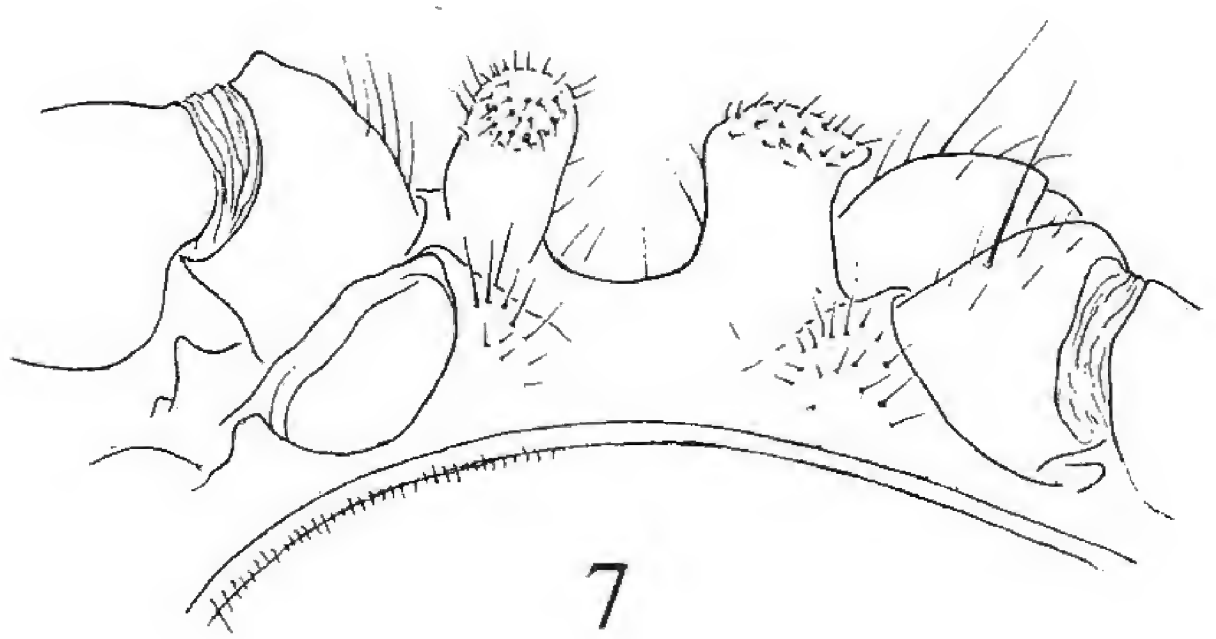


Fig. 6. Sterna of segments 4 and 5 of holotype, oblique caudolateral aspect showing shape of paramedian processes, each of those on segment 5 is slightly constricted at base, thus subboletoid. Fig. 7. Sternum of segment 6, caudolateral aspect to show caudal projection of distal ends of sternal processes.

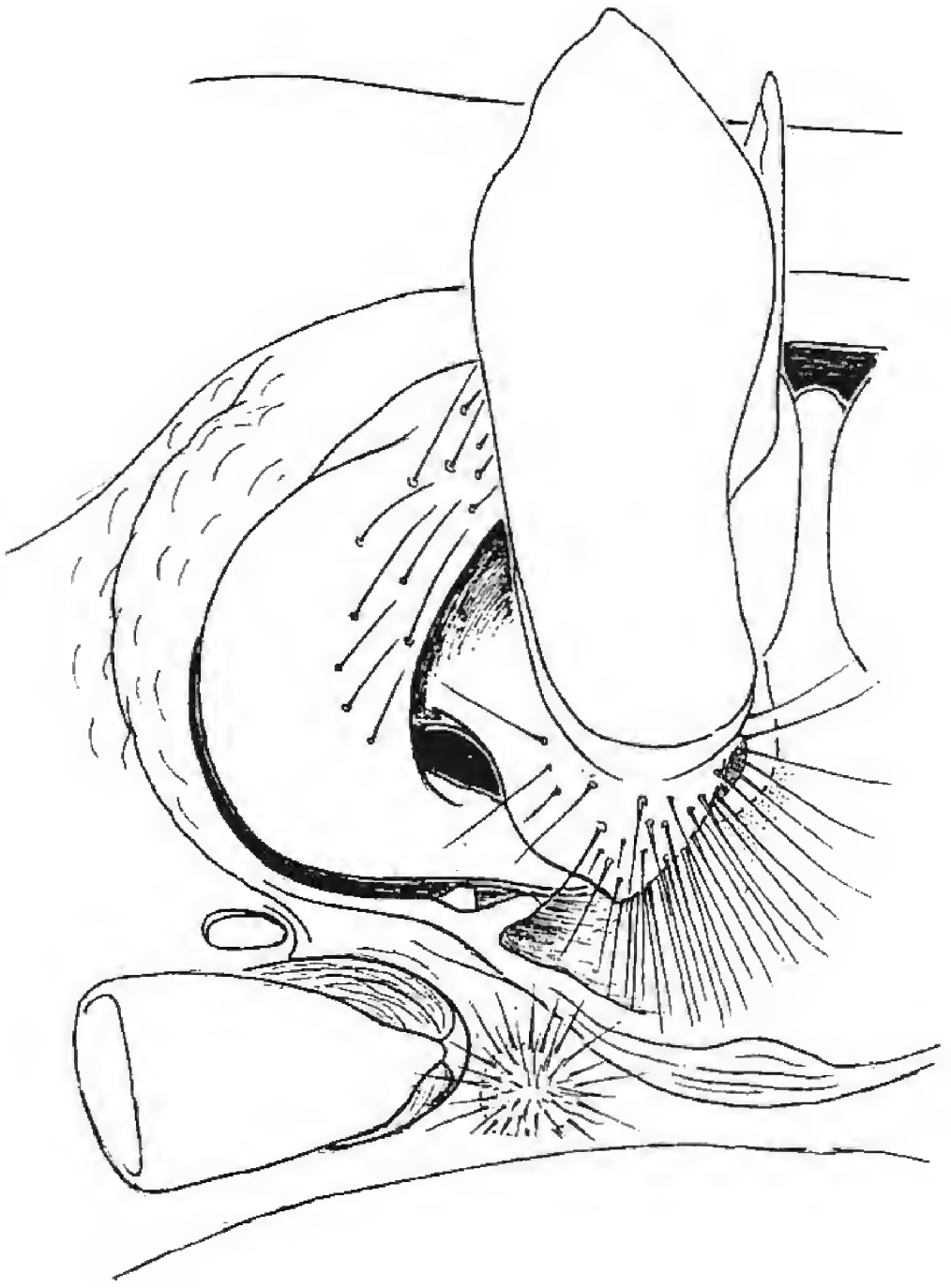
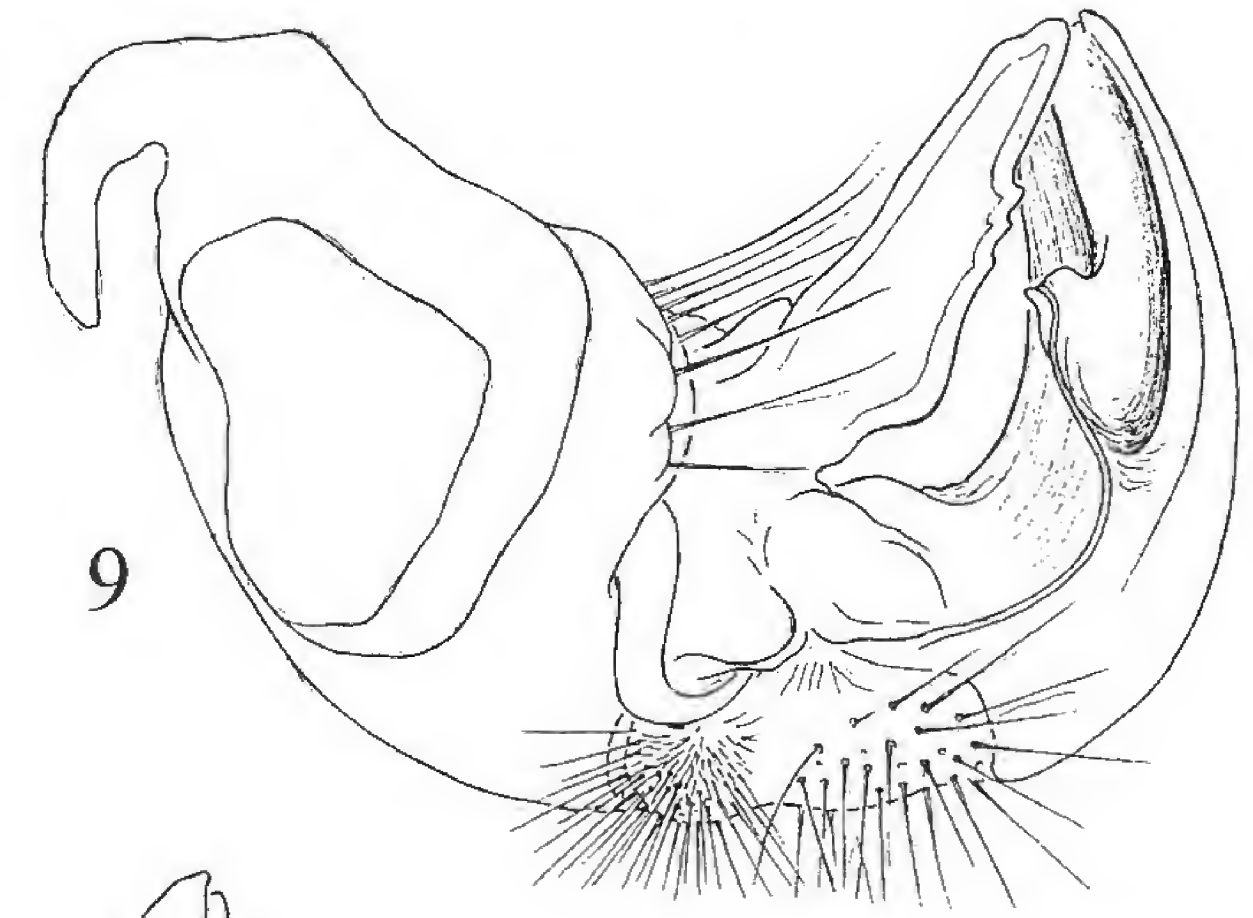


Fig. 8. Ventral aspect of right gonopod in situ and right side of gonopod aperture. The true, inflexed. distal edge of the gonocoxa is not visible.



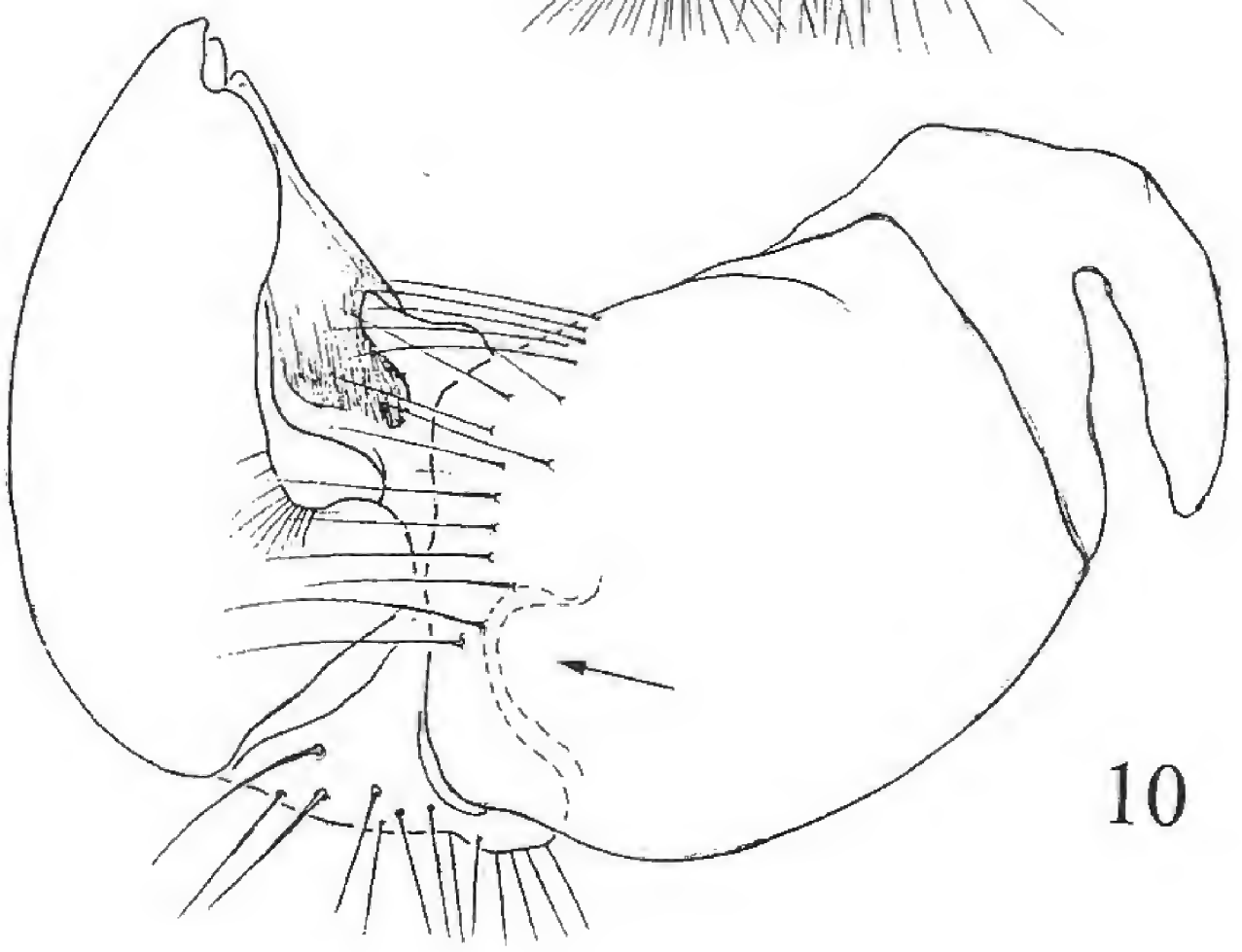


Fig. 9. Left gonopod, mesal aspect. Fig. 10. Left gonopod, lateral aspect.